

## PHASE INDICATION APPARATUS

### Abstract of the Disclosure

A variety of embodiments may include a voltage controlled oscillator to generate a differential signal on two nodes; and phase detector to compare a phase of the differential signal and a phase of a received signal, the phase detector including a sampling circuit to periodically sample voltage values on the two nodes, and a linear voltage-to-current converter responsive to the voltage values to create a control voltage for the voltage controlled oscillator.

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